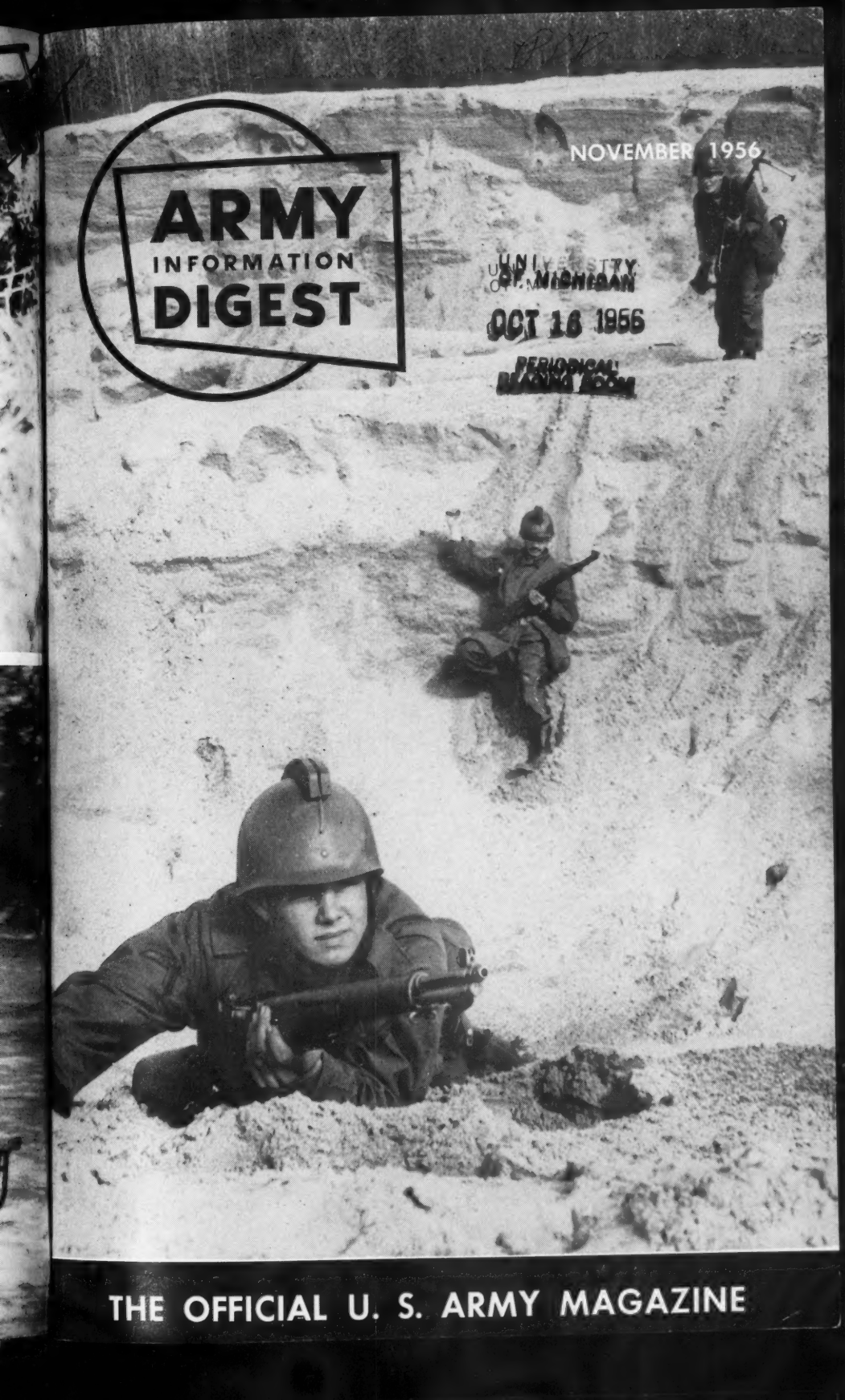
ARMY
INFORMATION
DIGEST
NOVEMBER 1956
UNIVERSITY OF MICHIGAN
OCT 16 1956
PERIODICAL READING ROOM
THE OFFICIAL U. S. ARMY MAGAZINE

ARMY INFORMATION DIGEST

OFFICIAL MONTHLY MAGAZINE of the DEPARTMENT OF THE ARMY

The mission of ARMY INFORMATION DIGEST is to keep personnel of the Army aware of trends and developments of professional concern.

THE DIGEST is published under the supervision of the Army Chief of Information.

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Publication approved by Director, Bureau of the Budget, 20 May 1954.

Manuscripts on subjects of general interest to Army personnel are invited. Direct communication is authorized to: The Editor, ARMY INFORMATION DIGEST, Cameron Station, Alexandria, Va.

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COMBAT SKILL is an art which must be constantly renewed by rigorous, relentless practice. Adding realism to the Army's war games and maneuvers are the Aggressor troops, who possess distinctive uniforms, equipment, even their own unique order of battle. More than mere sparring partners, the Aggressors on the front cover were among those who carried out surprise tactics of a real enemy during Exercise Sage Brush last year, to test alertness and combat power of Army units.

PICTURE CREDITS: All illustrations are U.S. Army photographs except bottom, p. 23, U.S. Navy, and center, p. 31, U.S. Air Force.

DISTRIBUTION:

Active Army:

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NG & USAR: Same as Active Army except allowance is one copy to each unit. For explanation of abbreviations used see SR 320-50-1.

DEPOSITED BY THE
UNITED STATES OF AMERICA

ARMY INFORMATION DIGEST

NOVEMBER 1956

Volume 11

Number 11

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A FRESH START FOR TROOP INFORMATION

"I&E" has been a highly controversial subject in the Army for many years. While a number of highly placed people, including influential commanders, have backed it enthusiastically, at the same time a great many commanders at all levels, and particularly from the regiment down, have consistently denounced "I&E" as an inexcusable waste of time.

Having been deeply interested in I&E for well over ten years, I must claim a place in the group who have supported it. I always saw a positive value in the education portion of I&E, and a very great potential value in the troop information aspect.

Nevertheless, it has been my experience, when I commanded divisions, that the formal "TI&E Program", with its apparatus of staff elements, and with the duties which were assigned to and prescribed for them, did not help me to run a good troop information program in my divisions. To get that I practically had to run a troop information program of my own, independent of the official program for which all that apparatus was provided. Light was needed; I was given a lamp with extension cord and plug; but when I stuck the plug into the electrical outlet the lamp did not light. I had to strike matches.

IN common with a good many other senior officers, it troubled me greatly that I could not get the lamp to light, and had to strike matches with my own fingers. It would appear that most of us finally arrived at the same conclusion: the "TI&E Program" was an artificial combination of two things,

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GEN. WILLISTON B. PALMER

Vice Chief of Staff

United States Army

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both of which would work better if they were separated.

The education aspect of I&E aimed to provide individuals with the opportunity while in service to keep up with their civilian school work, and round out deficiencies in their civilian educations. A variety of outlets were provided: correspondence courses furnished by USAFI; resident instruction for those who wished to complete a college education and obtain a degree; and, at the other extreme, elementary school instruction for those who could barely read and write. All of these outlets were valuable to the individual and valuable to the Army. I would be the last to criticize any one of them.

But the troop information program had entirely different aims and required an entirely different type of staff assistance to the commander. Its purpose was to provide members of the service with convincing answers to Why we fight and Why we are overseas—and, working backward to the beginning of a man's Army service, Why we must go overseas, Why we must endure this arduous training, Why we must serve in the Army.

Once a division commander (for example) sees the merit of providing convincing answers to questions like these, other questions simply leap at him, questions of concern to all elements of his command. For example, "Why should wives shelter their husbands from weekday parties and get them to bed early?" Or, in a different direction, "Will we get a leave before we go overseas?"

THE opportunities are really unlimited. For example, it is extremely important to run a special troop information program in preparation for maneuvers: the reasons for strict attention to discipline and to the things one has learned in training; the importance of playing ball with the umpires

(who lead unhappy lives); the importance of repairing damage to private property; the importance of putting equipment back in good working condition before anyone takes leave after the maneuvers.

OR consider the vital importance of a troop information program bearing upon a movement overseas: the importance of completing all prescribed preparations 100 percent; the peculiarities of shipboard discipline; the importance of gentlemanly and cordial conduct and avoidance of overbearing attitudes in the foreign country; the anxiety of the division commander to see each man return home with his personal reputation untarnished by carelessness while abroad.

These are but a few of the themes which should be played up by the troop information program. Of course a division commander *can* do it by himself, but there is no more reason for him to do this part of his job without staff assistance than any other part. So he needs a staff officer of certain special talents to help him with this work; and they are not the talents which are necessary to the staff officer whose job it is to arrange for off-duty educational facilities. No! The two things are completely dissimilar; they require different approaches, and different talents are needed to run them.

ACCORDINGLY, it was with heartfelt pleasure that I recently received a recommendation to separate troop information from the educational aspects of the old TI&E Program once and for all.

The proposal was to group the Troop Information section of any staff with the Public Information section, the two heading up through a Chief of Information (or Information Officer) to the commander and chief of staff. The education aspects of the old TI&E Program have been found to fit best under the Personnel branch of the staff, and accordingly would be settled in there. This proposal was so sensible, and so in accord with experience over the past ten years, that it was gladly accepted, and is in process of implementation throughout the Army.

I anticipate objection from one particular direction. There has always been a well-intentioned element which has maintained that civilian educators should take over the Troop Information Program. This is a Commissar System, nothing else. If the military leaders ever consent to stand aside while enlisted men and hired civilian teachers take charge of what the U. S. soldier thinks, military leadership will be hopelessly compromised. "Men think as their leaders think." Let us never forget it.

Those of us who have worked hard at breathing life into the Troop Information Program hope that its high potential will now begin to be realized. It takes a long time to bring a new idea to maturity, but we hope that this one is growing up at last.

Of vital importance to every officer are the operations of

Army Career Management

Major Max L. Marshall

FOLLOWING World War II, studies were initiated to determine why a number of officers had apparently been ill-prepared for serious wartime responsibilities even though they had spent as much as twenty years in uniform. The conclusion eventually reached was that such failures generally resulted from a prior lack of broad practical experience rather than from a deficit in theoretical knowledge, or from lack of innate ability.

During the period between the World Wars, it had not been at all unusual for officers to spend many long years performing the same type of duty and—because of the existing promotion stagnation resulting largely from the World War I "hump"—to perform continuously in the lower levels of responsibility for long periods. Thus, it came to pass that many a middle-aged "professional company commander" proved inadequate when war and full mobilization suddenly thrust him into the higher command or staff echelons.

Another important deficiency stemmed from the lack of an adequate culling and weeding-out process to ensure that the officer corps consisted of leaders capable of assuming the spiraling burden of responsibility that crisis would bring.

This staff-prepared article by MAJOR MAX L. MARSHALL, Production Editor, ARMY INFORMATION DIGEST, is based on interviews and authoritative information furnished by members of Career Management Division of the Adjutant General's Office. All data and policies set forth in this article have been authenticated by Career Management Division.

"CAREER MANAGEMENT" was the term adopted to describe the new policies and the principles of scientific personnel management designed to remedy the situation. Its purpose was to bring together both the theoretical and the practical aspects of peacetime preparation for wartime responsibility; to ensure that opportunities for professional development existed to the end that officers (and the Army) could exploit their maximum potential; and to eliminate those who were either unfit or incapable of sufficient growth to enable them to assume additional responsibilities in the event of war. Basic operating tools to accomplish these objectives consisted of the monitoring and control of assignments and schooling, and the development of officer screening machinery capable of ensuring the maintenance of an efficient, vitalized officer corps.

"Career Management" also became the designation of the operating agency charged with applying these new principles and tools. In the beginning this name was useful, as it brought into sharp focus the fact that officer personnel operations would henceforth be meticulously controlled in order to obtain optimum utilization of the officer corps and to prevent in times of future emergency such failures as were noted above.

However, as time went on it became increasingly apparent that the term "Career Management" in many respects was a misnomer, and that to some extent it tended to create more confusion than understanding. The reasons can best be seen in the light of the two missions of officer personnel operations relating to the Active Army:

Primary Mission:

To keep the Army operating efficiently by the wise, coordinated, and appropriate assignment of qualified officers to the jobs that must be performed to carry out the Army's world-wide tasks.

Secondary Mission:

To assist each individual—*during peace-time*—to develop his professional qualifications to his utmost capability by means of planned rotation through various broadening assignments, and by appropriate schooling.

A third mission, support of mobilization operations, includes the preparation and maintenance of mobilization assignment slates.

Unfortunately, the term "Career Management" gives a reverse impression concerning the priority of the two active duty missions; also, it fails to make clear that the career development of officers is a shared responsibility in which the individual must take part, and that it is strictly a peacetime operation. When war breaks out it is too late to prepare officers to assume positions of greater responsibility. Once the crisis has begun, the efforts of Career Management Division must be expended in placing the right officers in the right slots and in obtaining optimum use of the skills, abilities and leadership qualities *then* available within the officer corps.

In general, the officer corps recognizes and accepts this—as was humorously reflected in the popular,

entirely accurate, corruption of the term "career management" to "Korea Management" during the course of the last conflict.

LIKE any other organization or agency, Career Management Division possesses definite capabilities and limitations within which it must operate as it seeks to solve its problems and accomplish its missions.

On the "limitations" side of the ledger are such considerations as the fact that the Division does not exercise exclusive operating control over all officers—only those in the combat arms and in a few of the specialist areas. Nominal control *only* is exercised over officers in the Technical and Administrative Services—a relationship instituted in the light of specal technical problems involved. For the same reason, the Deputy Chief of Staff for Logistics (DCSLOG) participates in policy formation for the technical branches, along with the Deputy Chief of Staff for Personnel (DCSPER) who is responsible for over-all personnel policies. As such, the organizational structure sacrifices the benefits of completely centralized control in exchange for certain other advantages.

The two important missions of Career Management Division call for compromise in the process of its day-to-day operations. The first (keeping the Army operating efficiently by proper officer assignments) often may be at variance with the other (developing each officer's maximum potential against future requirements). This may occur not only on the working level where individual assignments are actually made, but also on the policy level.

For example, the policy of having lieutenant colonels serve only for 14 to 18 months as battalion commanders involves such a compromise. The necessity for keeping the Army operating efficiently *today* was carefully weighed against the necessity for providing *tomorrow's* combat leaders with requisite command experience. If the length of the tour were shortened, *more* than two-thirds of the lieutenant colonels could be provided some command experience, but the too rapid turnover of command would adversely affect the operations of the units; on the other hand, if the tours were lengthened somewhat, current efficiency might be increased to a degree, but *too few* officers would be undergoing necessary preparation for future greater responsibilities.

There is another limitation—more exactly a major problem—in connection with the optimum implementation of career management policies. This revolves around the attainment of full support from the officer corps. Keeping in mind the fact that assignments comprise the major tool of officer personnel operations, it is significant that only approximately 26 percent of the over-all total are made at the Department of the Army level, with the remaining 74 percent being made by commanders in the field.

EVERY commander has a direct obligation to ensure that the officers within his unit are given the benefits and broadening experience derived from rotation of duty assignments. To the maximum extent possible, consistent with the effective operation of his organization, he should personally see to it that this extremely important phase of

the Army's peacetime training mission is carried out. He may rest assured that any temporary loss of unit efficiency which may result from instituting sound rotation policies will be more than made up for in the long run—this because his officers will perform better as a result of their broadened range of familiarity with many aspects of the unit's operation, instead of being bound by the narrow limits of one particular duty. Side benefits will include smoother coordination, and less likelihood of disruption when an officer becomes sick, takes leave, or is transferred—all in all, greater long-run unit efficiency.

Of particular importance, the commander should encourage his officers—particularly his better ones—to attend appropriate temporary duty schooling. The possible temporary lowering of unit efficiency caused by the absence of key officers should be carefully weighed (in favor of the individual if it can be at all managed) against the officer's career needs—of which schooling is vitally important. It is only fair to repay in the form of "reverse-loyalty" the efficient and faithful service of those officers who are hardest to do without, temporarily.

THERE IS another side to the coin, however, in this matter of support of career management policies by the officer corps. It concerns each officer as an individual and, simply stated, requires that he assume part of the responsibility for his own career development. Technical Manual 20–605 clearly sets forth, for each branch of the service, the type duty assignments and schooling that make for a well-rounded military career.

It behooves each officer to study the career pattern of his own branch of service, and then to do all within his power to approximate it. What *can* he do? At times, nothing; at other times, very much. Over a period of twenty or thirty years his own contributions can be substantial. They might consist, for example, of a variety of actions, as follows:

Keeping in mind the fact that about 74 percent of all assignments are made in the field, an officer upon first reporting to a new organization would do well to ask for an assignment that will fill one of the gaps in his own career pattern, instead of taking the easy path—namely, requesting a duty assignment with which he is familiar.

If an appropriate assignment is not possible at the time, he should remain alert for the opening of a gap-filling vacancy (career-wise) in his unit, and request such assignment when it occurs. Even if he is initially successful in obtaining a type duty that he needs to round out his career pattern, he should nevertheless keep his eyes open for additional opportunities that might crop up. For example, if it can be worked out, a three-year tour split between two needed assignments would be of greater benefit than a tour spent in just one.

In connection with the above, the individual should remember that his commander must keep the unit operating effectively, and that at times it will be impossible for him to honor specific assignment requests. On the other hand, at other times it frequently *is* possible, and a little initiative on the part of the officer can make all the difference.

At the same time, it should be

kept in mind that a too rapid turnover in duty assignments becomes meaningless in that the individual does not have sufficient time to acquire a good working knowledge of any of them. Moreover, this may indicate that the commander is having trouble placing him.

Another manner in which the individual officer can contribute toward his own career development is to indicate on his preference cards requests for assignments that will fit in well with his branch pattern. These cards are carefully studied and play an important role in determining all assignments emanating from the Department of the Army level. For example, an officer ordinarily would not again be given an assignment in a duty he has performed well in the past, but for too long a period of time careerwise. However, if he requests it, and the requirement exists at the time and is difficult to fill, the weight of his own request may well be just the element causing what is, in effect, an adverse action with respect to his Army career.

WITHIN Career Management Division, every effort is expended to see that each officer receives maximum consideration *as an individual* whenever action affecting him is to be taken. This fact is not completely accepted by some members of the officer corps who erroneously believe that lip-service only is paid to this principle. This type criticism fails to take cognizance of the fact that, in addition to personal aspects, other important considerations must simultaneously be weighed in the Division's day-to-day operations.

First, and most important of course, is the fact that the "needs of the Service" must remain paramount. This translates directly into a restatement of the missions—keeping the Army operating efficiently today, and preparing leaders the Nation will need tomorrow.

Career management is not an *end* of itself; only a *means* to accomplish these stated purposes. Everything possible is done for the individual but obviously not everyone can be made happy by providing to all an optimum career-pattern (to be served solely in desirable localities and leading to general officer status).

When, for any valid reason, the needs of the Service temporarily conflict with the career needs of a given individual and there is no alternative solution, the former must take precedence. Such conflicts occur from time to time, and everyone is vulnerable to them. Here it should be borne in mind that the ideal career pattern is seldom if ever attained by anyone and that in practice all that is necessary, or even possible, is to *approximate* it—the closer the approximation, of course, the better.

ANOTHER important factor affecting CMD personnel operations revolves around the fact that all officers do not possess equal attributes of personality, character, human understanding and professional competence. Not only are all officers not equally endowed, but there is a large variance in the degrees to which each individual develops those potentialities which lie dormant within him. Separating out the best for special consideration is perhaps one of the Division's most difficult and time-consuming operations.

Because CMD actions today will determine to some considerable extent tomorrow's top leaders, great care must be exercised in assigning officers within each age and grade level at any given time. Although each officer deserves, and receives, equal consideration for important duties, actual assignments must be made on the basis of qualities of leadership and other attributes that the individual has already *demonstrated by the time of consideration.* In this respect the assignment processes play an important role in the over-all effort to find the maximum-potential officer and provide him with opportunity for further growth. If he serves well in a new and more difficult position of higher responsibility, he will be given additional opportunities.

Still other factors must be considered. Economy is a big one. On the average it costs an estimated $5,000 to move an officer, his household goods and dependents on a permanent change of station. This, added to the fact that funds for this purpose are limited by Congress, means that a watchful eye must be maintained over the total number —and the individual importance— of transfers. This is necessary to ensure that the Army obtains the maximum benefit *for each dollar* expended from the limited funds available for this purpose.

CHANGING POLICY is inevitable in any forward-moving, modern Army. CMD operations must not only reflect such policy changes, but also must anticipate them and be prepared for implementation with minimum delay.

New programs, such as Gyroscope, impose a heavy workload on existing personnel operations and call for many complicated readjustments. In Operation Gyroscope, for example, complex details had to be worked out in connection with the transfer of officers into and out of Gyroscope units—to the end that some officers would not be locked in and others locked out, with the result that both would be denied varied and essential career-developing duty assignments. Moreover, the planning of such transfers had to be carefully coordinated with respect to an intricate time-schedule during a portion of the organization's stay in the United States —this in order to maintain the efficiency of the respective units and to avoid the disruption which would otherwise be created by a mass exodus of officers, entailing a flood of new replacements.

THE NATION'S international commitments affect the disposition of elements of the Army worldwide and directly influence officer personnel operations. The missions performed overseas by elements of the Army differ in varying degrees and call for corresponding variations in degree of support from each of the combat arms and technical and administrative services.

This can mean that heavy requirement for officers of a particular branch may lead to a repetition of assignment in an undesirable area despite the best efforts of the branch to spread the requirement fairly among all its members. Conversely, missions in another, more desirable, theater may dictate a heavy need for officers of another branch with opposite results.

MILITARY legislation—the basic authority for all personnel policies

and operations—is necessarily continuous, and each new law calls for readjustments in existing programs so that the new requirements are incorporated, and the mandates of Congress properly executed.

Just recently the Congress passed legislation that will eventually increase the strength ratio of the Active Army to 50 percent Regular officers. Now that this bill has become law, not only will CMD assume immense responsibilities in the selection of Regulars from among those who apply, but important realignments also will be required within the operational areas administering the various CMD programs as a result of the changed status of the officer corps.

ADVANCING technology has a vital impact on Career Management Division activities. Barely noticeable in its effect from one day to the next, it nevertheless, during the short space of a single year, brings forth many new and urgent demands.

If the United States Army is to remain well ahead of the armies of potential aggressor nations, progress of every kind—tactical as well as technical—cannot be denied, and many new problems must constantly be solved. The effects of such progress can be seen in personnel programs of recent origin—army aviation, guided missiles, and logistics specialists, among others.

MAINTAINING the proper qualitative and quantitative distribution of the officer corps throughout the various elements of the Army world-wide is still another important consideration. Army activities and installations differ in the *kind* of missions they are performing, and also in their respective *importance,* considered in the light of the Nation's over-all objectives.

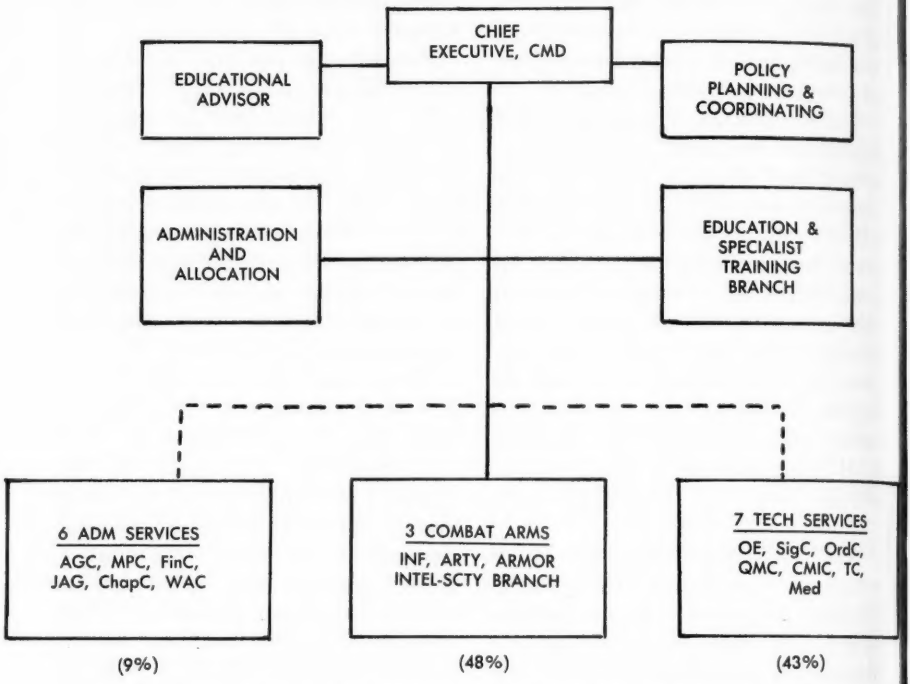
Accordingly, not only must sufficient officers possessing requisite skills and experience be assigned to each unit from the various branches (quantitative distribution), but also the relative importance of the mission influences the proportion of outstanding officers versus officers of lesser capability to be included in these numbers (qualitative distribution).

Then—and tied in with all of the above—there is the vital factor, both from a morale point of view and from the standpoint of the Nation's best interests, of ensuring that so far as is humanly possible each officer be given every consideration possible and be treated as an individual, not a number. This does not mean that everyone should be assigned to a tour of duty in the Office of the Chief of Staff—only that, *based on attributes and abilities he has already demonstrated,* he be given further opportunity wherever possible to develop his natural talents to the end that he may become an outstanding officer and, as such, receive equal consideration with others in the same category for such assignment.

On the other hand, it *does* imply that insofar as possible all officers will receive their fair share of duty in different geographical areas.

THE ORGANIZATION developed by Career Management Division of the Adjutant General's Office to meet and solve these problems is schematically presented in the chart which follows. *(See page 12.)*

ORGANIZATION OF CAREER MANAGEMENT DIVISION OF THE ADJUTANT GENERAL'S OFFICE



POLICY, PLANNING & COORDINATING SECTION develops plans and policies for CMD participation in such broad programs as Gyroscope and the Long Range Active Duty Program; also, it is responsible for liaison and coordination with other Department of the Army agencies in matters pertaining to officer personnel.

THE EDUCATIONAL ADVISOR assists in selection of officers to attend universities under the Army's civil schooling program. In this connection, he works closely with the EDUCATION AND SPECIALIST TRAINING BRANCH. The latter unit programs civil schooling requirements and monitors branch selections as well as the utilization tours of participating officers. Its other important functions include: reviewing branch senior school selections for the combat arms and the administrative services; recommending policies and procedures in connection with military schools; monitoring assignments to the staff and faculty of the senior service schools (C&GSC and higher); and the monitoring of specialist programs, including the selection of language school students and attaches. Of relatively recent origin and ever-increasing importance, it monitors the assignment of officers under the Army Aviation program; similarly, it determines the status of officers assigned to Airborne and Special Forces units.

ADMINISTRATION AND ALLOCATION BRANCH receives and validates requisitions from all Army commands and agencies, and allocates the vali-

dated requirements to one of the seventeen career branches; it monitors, by name, officers assigned to critical areas such as Offices of the Secretary of Defense, Secretary of the Army, and Chief of Staff, general and special staff sections, MAAGs, missions, reserve components instructors and advisor groups, and joint headquarters; it determines allocation of senior school graduates to agencies worldwide; and it provides statistical data in support of CMD operations.

The rest of the organizational chart illustrates the direct control exercised by the Chief, Career Management Division, over the combat arms and the nominal control relationship with the technical and administrative services.

INFORMATION and personnel actions comprise a substantial share of the over-all Career Management Division workload. The information function is an important one both from a morale point of view and from the standpoint of disseminating information which will lead to understanding, and subsequent cooperation from the officer corps.

Aside from the preparation of manuscripts and releases for Service magazines and newspapers, every effort is made to cooperate with other Army agencies in disseminating to the officer corps details on Career Management Division.

Of utmost importance to the individual, specific aspects of the progress of his own career and appropriate counselling are available to him within his own career branch, and thousands profit by this each year. It is well worthwhile for every officer to visit his particular career branch when he happens to be in the vicinity of Washington—or even to make a special trip for this purpose.

He will find that Career Management Division personnel will make every effort to answer any questions; also, he will be able to form a fairly accurate picture of his own status compared with others of the same branch, grade and age. In addition, he will be reminded that a substantial share of the responsibility for the development of his own career rests squarely upon his own shoulders. He will be advised that he can best discharge this responsibility by performing outstandingly in each duty assignment insofar as he is capable, by remaining alert to the possibilities of improving his professional competence by seeking rotation of assignments within his unit whenever appropriate, and by accepting opportunities in which he can exercise responsibility.

THE LARGEST single project within the Personnel Actions grouping is the administration of the Career Category Program. (May 1956 DIGEST.) Other key operations include Career Management Division participation in, and support of, the following programs: procurement of officers; transfers and details between branches; retirements; resignations; elimination of sub-caliber personnel; and the maintenance of a branch and grade structure suited to Army needs.

The remaining functions of Career Management Division—career programming, assignments and education—are closely inter-related and constitute the primary means of accomplishing its missions.

Of these functional areas, most important and requiring the greatest effort, is *assignments.* This operation involves the optimum quantitative and qualitative distribution of officer personnel world-wide to permit support of all Army activities, while simultaneously emphasizing those that are most critical; the tabulation of the sum total of officer qualifications (resources) to be applied against existing requirements; and the determination of each individual's assignments by a studied approach of the officer's record with reference to over-all Army requirements and available resources, and with due consideration to his personal desires.

Main objective of the *education function* is to ensure that officers receive appropriate basic, company, and advanced schooling; it also involves the selection of the ablest for attendance at senior military and civil schools in accordance with established quotas. Career schooling constitutes important theoretical training which an officer should have for continuous career development.

The *Career Programming Function* exists so that officer assignments are made in accordance with a program which will in turn provide basic branch knowledge, broadening staff and reserve component experience and eventually—to the best qualified—high level staff and command responsibilities, combined or joint experience, and duty with foreign nationals (missions, attaches). All career programming aims at preparing officers to assume ever-greater responsibilities. In effect, career programming amounts to controlled "on-the-job training" required to supplement theoretical training received through military education.

IN THE decade in which Career Management Division has been in operation, much solid progress has been made in the over-all field of officer personnel operations. Like any other agency, Career Management Division is not perfect—else there would be no need for the painstaking studies continuously being conducted to obtain further refinements in personnel policies, programs and techniques, and in the search for newer, better ones.

On the other hand, Career Management Division has been successfully accomplishing its vital missions with increasing efficiency despite the multiplying complexities in the problems it must solve, and within the limitations in which it must operate. In the main, near-optimum practices have been established and are recognized as such by personnel familiar with the intricacies of the over-all area of Army personnel operations.

Nor are all of the accomplishments of Career Management Division ascertainable by examining the favorable status of officer efficiency and utilization evident in current operations of the Army. Only an emergency would clearly point up the benefits obtained through Career Management Division operations aimed at developing top leaders today against the contingency of war tomorrow.

The Signal School's "Operation American Way" shows foreign students from many lands that—

COMMUNICATIONS WORKS TWO WAYS

Lieutenant Arthur Z. Kaminsky

A GROUP of students in the uniforms of a score of foreign countries discussing governmental functions with the Governor of a State—

- Discovering that they can get information and advice from an American university on such subjects as control of plant diseases—
- Seeing at first hand how a large industrial concern functions—
- Visiting a radio network headquarters or a metropolitan newspaper plant—
- Attending sports events—
- Speaking as individuals before luncheon clubs and being entertained in typical American homes on typical American holidays—

These are some of the activities that The Signal School at Fort Monmouth, New Jersey, arranges for the hundreds of Allied national students who attend courses there every year. The School calls it the American Way of Life program.

Primary function of the school—like all Army service schools—is the teaching of military subjects. In this case the students, representing some 25 nations of the Free World, are instructed in every Signal subject from enlisted specialist training to the Signal Officers' Advanced Course. Most of the students are being trained under the Mutual Defense Assistance Program.

But technical communications subjects are not all that The Signal School teaches its Allied students. While in the United States the students—some here for nine weeks, others for nine months—learn about the United States and what makes it a great country. Already conversant in English, they learn about our culture, traditions, history, industry, agriculture, educational systems, government and, above all, our people. They learn that communications works both ways.

The program works two ways, too, as American officers and enlisted personnel learn a great deal

LIEUTENANT ARTHUR Z. KAMINSKY, Signal Corps, is Public Information Officer, The Signal School, Fort Monmouth, New Jersey.

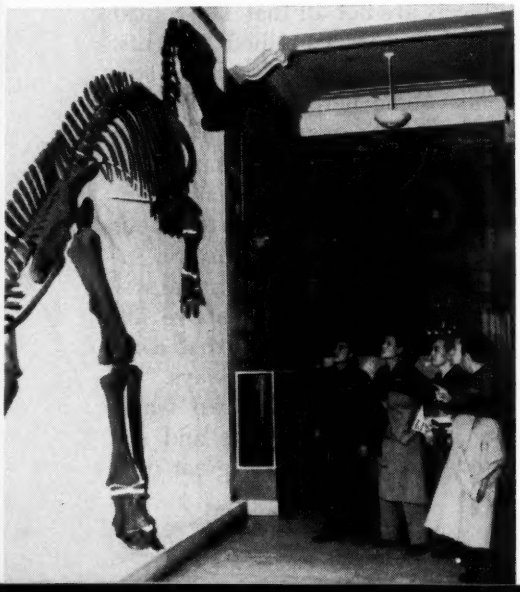
about the customs and peoples of many foreign countries.

The overall result of this plan is that top-flight, well trained, combat-ready Allied Signal officers and enlisted men are familiar with American equipment, techniques, methods and doctrine. At the same time, they also become staunch friends of the United States and the American way of life.

ALL courses at the School are integrated. The foreign students go to the same classes, live in the same barracks, eat at the same messes, with U. S. Army students. In the BOQs, the spirit of a college dormitory prevails—with an international flavor. It is not unusual to see a Nationalist Chinese colonel and a Greek major earnestly discussing Signal Corps radio matters with an American captain.

Although all foreign students must know English, the School also conducts a special English training program to help those who may require further assistance. As part of their English orientation, playlets are staged with such themes as "Buying in a Store," "Getting a Haircut," "Going for a Bus Ride."

Students from foreign lands view the remains of an "early inhabitant" as they visit a nearby natural history museum.



Because, quite obviously, the foreign students have no means of personal transportation, the School makes arrangements for group trips and visits to American institutions—legislative bodies, national shrines, museums, military and industrial installations, sports events.

To demonstrate the workings of a typical governmental unit, students recently visited the seat of Monmouth County in nearby Freehold, then went to the State House in Trenton and later attended a session of the Congress in Washington. At Trenton, where they were greeted by the Governor of New Jersey, one Thailand colonel remarked to an American lieutenant —"Do you mean anybody can see the Governor and talk to him so easily? I think it is splendid."

Students are taken on tours of Rutgers and Princeton Universities, both close to Fort Monmouth. At Rutgers an Indonesian captain was astonished to learn, in a question and answer period conducted by a professor of agriculture, that he—or any other individual so desiring —could write for advice on such matters as plant disease control.

RANGING across New Jersey, the students visit various large industrial plants. On trips to New York they see the workings of a large radio network, visit a newspaper office, tour the United Na-

On a visit to Associated Press headquarters in New York, students see how news is received on teletype machines from all parts of the world.

tions headquarters. The students also visit the United States Military Academy at West Point and the Naval Academy at Annapolis.

As one phase of the program, the foreign students are introduced to American sports. At a Rutgers-Princeton game last fall the students soon got into the spirit of the fray and cheered on the underdog —Rutgers in this case. After the game they even helped to console a few Rutgers alumni who were seated nearby.

One of the most heartwarming aspects of the entire program has been the meetings with American families. During Christmas and Thanksgiving holidays, there are few foreign students at Fort Monmouth—most are invited to American homes.

Frequently they are asked also to speak before youth groups, Parent-Teachers' Associations, or local civic clubs. Not long ago a Korean sergeant who was long an admirer of authoress Pearl Buck was invited to spend a weekend at her Pennsylvania home.

Residents of Long Branch, Asbury Park and Red Bank—the principal communities near Fort Monmouth—have taken a deep personal interest in the entire program. It is a common occurrence to have local citizens gather at the railroad station, bidding goodby to students returning to their homelands.

All this is part of the American Way of Life program at The Signal School. Combined with excellent military and communications training, it is building a deeper understanding of America and Democracy, as well as a strong united front in the battle to protect and preserve the Free World.

FOREWORD

PREVIOUS articles appearing in ARMY INFORMATION DIGEST—including "Tactical Aerial Mobility," February 1955; "Cubs to Copters," October 1954; and "Aircraft for the Army," June 1952—have dealt with the history, development and application of organic aviation in the Army.

This article deals with the future. Since it does this, it does not represent Department of the Army policy. Rather, it is an attempt by an individual to evaluate a number of imponderables and from the evaluation to make predictions as to likely future prospects.

That change is certain and even predictable is evidenced by comparing the state of Army Aviation twenty-five years ago with the present, then projecting the curve—even a few centimeters—toward a point in 1980.

And while it must be emphasized that the views expressed in the following article are those of the author, and do not represent official policies of the Department of the Army or any of its agencies, it is believed that a forward look of this nature, envisioning the state of Army Aviation twenty-five years hence, may help the reader bring into focus some of the day-to-day developments in the fast moving field of Army Aviation.—Editor.

Ideas from a notebook on

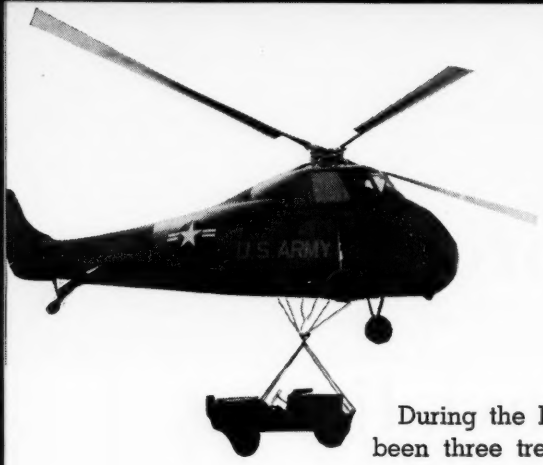
future prospects of army aviation...

Brigadier General Carl I. Hutton

Will the future of Army Aviation be any different from the past? Of course, the answer is YES! Change is constant in war, and in anything which is making such rapid technological strides as aerodynamics, the change is certain to be very marked. The Army's task is to keep abreast of the increasing capabilities. It would be very easy to fall behind scientific progress through ignorance, through improper organization for keeping abreast of developments, or through allowing our thought habits to blind us to what new types of aircraft can do to help us accomplish our jobs.

BRIGADIER GENERAL CARL I. HUTTON is Commandant, Army Aviation School, U. S. Army Aviation Center, Fort Rucker, Alabama.

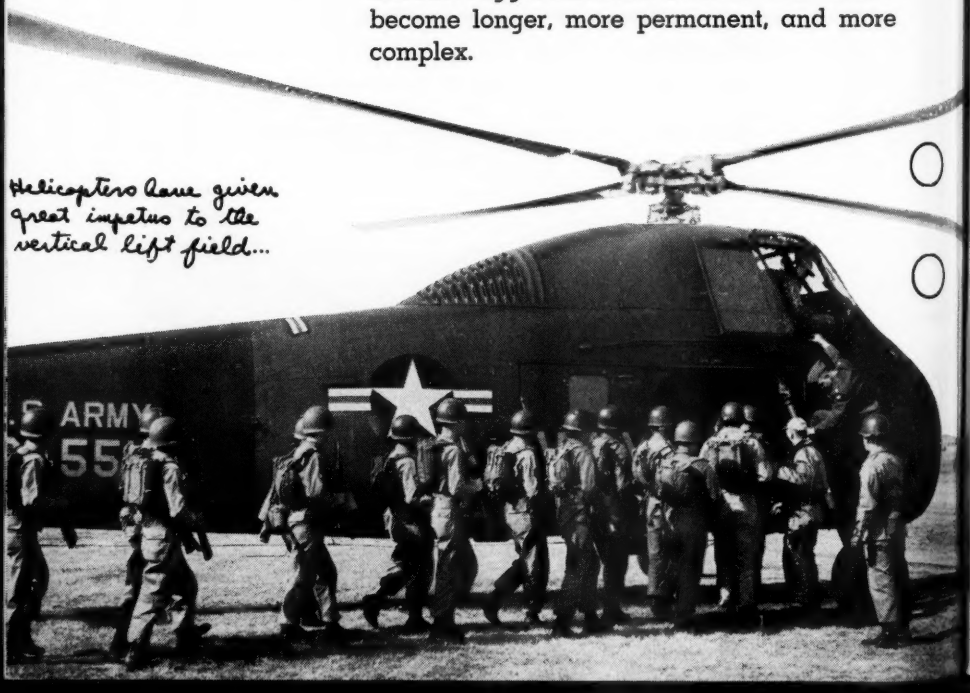
Convertiplane in flight...



During the last twenty years, there have been three trends in aircraft design which have an important bearing upon the Army's aviation problem. **The first is the tremendous increase in the size of aircraft.** Fifteen years ago airliners carried about eighteen passengers. The new ones will carry ten times that number, because the industry has found that the increased revenue more than offsets the increased initial costs. Therefore, the trend continues towards larger and yet larger airplanes.

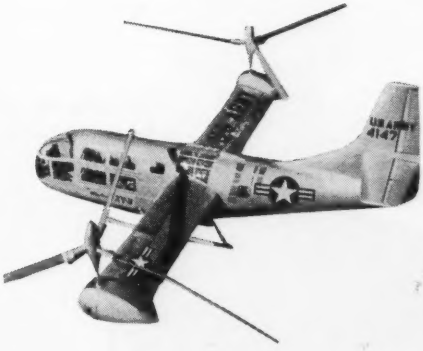
The second is the great increase in speed. This factor is important both economically and militarily. Both the Air Force and the airlines are putting the weight of their investments into more speed. As the airplanes become bigger and faster, the air bases must become longer, more permanent, and more complex.

Helicopters have given great impetus to the vertical lift field....

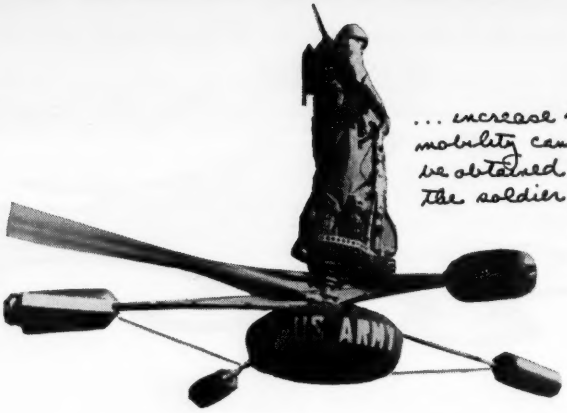


The third is the great impetus which helicopters have given to the vertical lift field. This has occurred especially in the last ten years. Helicopters have advanced in that short period from playthings to proven commercial articles. They have proved themselves in combat, and in operations over such varied terrain as Alaska and South American jungles. Their success has stimulated a great deal of basic research in the vertical take-off and short take-off and landing possibilities.

The Army cannot depend upon roads or permanently constructed bases.



of army aviation . . .



... increase in mobility can only be obtained if the soldier flies.

THE FIRST two trends, size and speed, have created a sort of vacuum in that aeronautical field in which the Army has its greatest interest. The Army's environment is the terrain. It must be able to live on and in that terrain. It cannot depend upon roads or permanently constructed concrete bases. The trends toward size and speed have left open the question of what can be done to adapt aircraft to the Army's requirement. Smaller airplanes will obviously be necessary if they are to melt into the terrain like other Army equipment. Just how much speed we will require has not been determined, but surely transonic speeds are not an immediate requirement.

If this technological gap is considered in relation to the very recent research in vertical and stationary take-offs and landings which resulted from the success of the helicopter, the combination of possibilities is very greatly increased.

... We can let the soldier move across country ...

... independently of the terrain ...

When we disassociate aircraft and fixed bases and long concrete runways, we arrive at the place where we can begin to consider the atmosphere for what it really means to ground warfare. There is no compelling reason for a squad to climb a mountain on foot, swim a river, or slosh through mud. There is a universal super-highway—the all-encompassing ocean of air—which can get the squad to its goal fresh and full of fight.

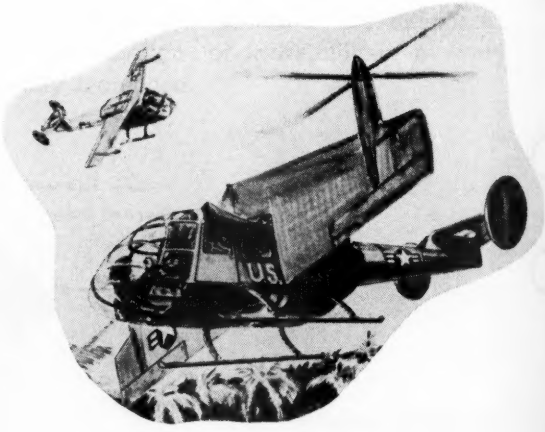
... a universal super-highway — the all-encompassing ocean of air ...

of army aviation . . .

TO DISCUSS the future prospects of Army Aviation, let us consider what might be the requirements and possibilities in 1980. This long-range view of the target will give an indication of the direction we should be moving today.

Suppose by 1980 there are Intercontinental Ballistic Missiles, man-made satellites, manned rocket ships, and super-super-super nuclear weapons. What sort of an Army will be needed?

It is pretty obvious that there is a chance that there will be no requirement for an Army that can move a mile-and-a-half an hour across country. Speed in striking (firepower) and speed of exploitation (movement) will be the necessary combination.

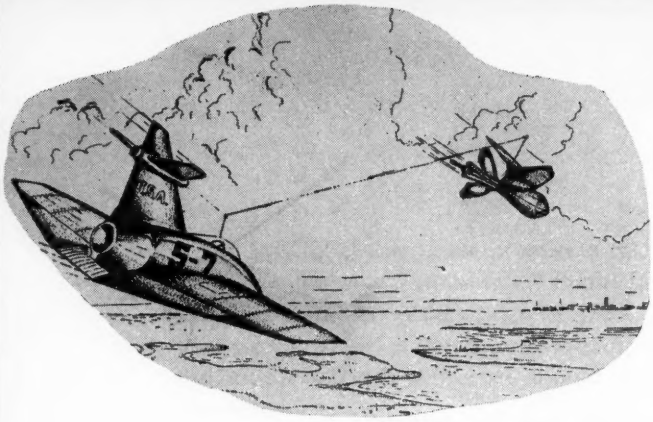


Firepower ... and movement will be a necessary combination.

of army aviation . . .

Increase in mobility can be achieved in two ways. First, we can let the soldier move across country independently of the terrain. Rice paddies, jungles, swamps, mountains, rivers and deserts then will not impede his movement. This will mean in many cases a thousand-fold increase in his mobility because there will be no necessity for him to undergo extensive delays in the face of tactical obstacles. Such an increase in mobility can only be attained if the soldier flies in some sort of flying machine.

The other way to increase mobility involves extending into the battle the faster cross-country capability which is given the soldier in airborne operations. There is a parallel in the Army today. Some soldiers ride to the battlefield in motor vehicles, and then dismount to fight on foot. Other soldiers ride to the battlefield in armored vehicles but they remain in their vehicles during the course of battle. In the latter case, the vehicle is more than a mere piece of transportation. It is also a weapon. The idea is really not so far fetched as it sounds once the premise is accepted that the soldier does not, by any divine law, **have** to have his feet on the ground. The armored soldier lives and fights in the environment of terrain but he does not have his feet on the ground either.



Air-to-ground ...

High speed transport will continue to be a requirement for long-range movement, but as the Army gets closer to grips with the adversary, vertical or hovering action will become an advantage in disposing men and fire power to gain maximum advantage in the otherwise inaccessible terrain.

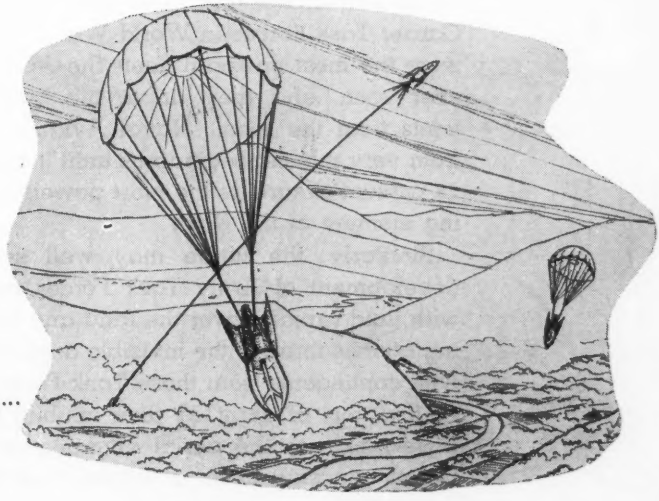
Just as the caterpillar tread helped the Army break out of road-bound confines, use of air machines will give the Army the added dimension which enhances its long-sought characteristics—greater mobility, increased and more effective fire power—independent of fixed and therefore vulnerable concrete runway type installations.

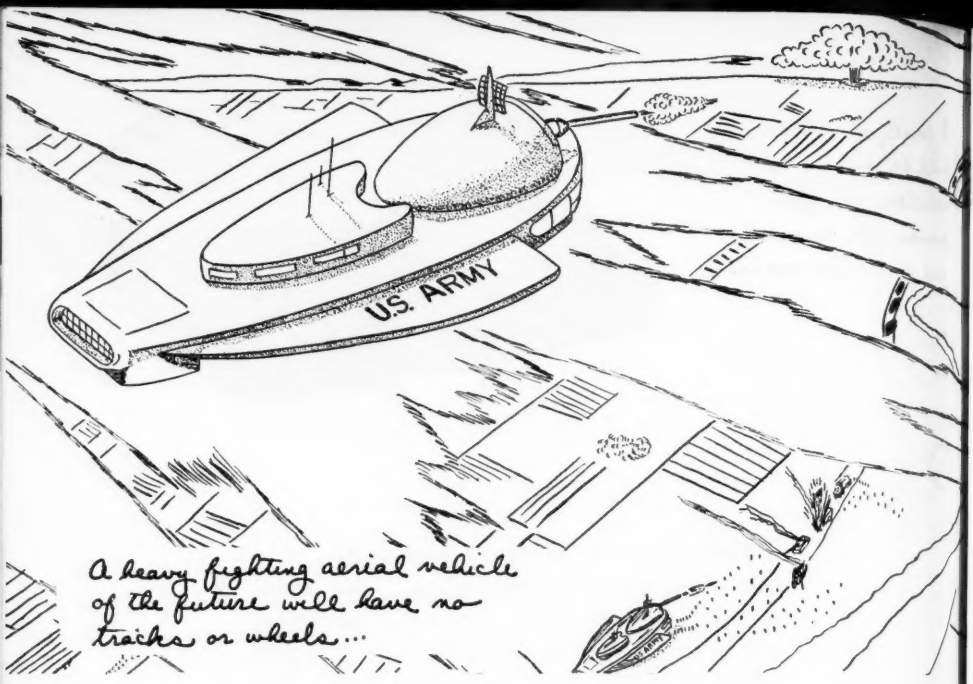
Use of air machines will give the Army ... greater mobility ... increased firepower.

A family of vehicles will be necessary — vehicles for fire-power, for command and for reconnaissance.

THE TACTICS of this future battle, it is true, have yet to be determined. The aerial fighting vehicles have not been designed, nor in fact stated as desirable. Yet it is perfectly possible that combining great firepower with great mobility will make as much difference in the land battle, for example, as the difference between a present armored attack and the rigid advance of the phalanx. War changes, and the main difference now is that the rate of change has grown infinitely fast.

Ground-to-ground···





Will warfare of the future be waged in vehicles such as these?

Consider the history of the development of Naval Aviation. In the early years of aviation, it is quite probable that naval tacticians could not foresee the development of Fast Carrier Task Forces in World War II. These were the most powerful fleets the world had ever seen, and they drove the battleship fleets from the seas. Naval Aviation grew from very modest beginnings until it attained its present stature as the most powerful fighting element of the Navy.

Similarly, the future may well see the development of Army Task Forces moving with fluid rapidity over the land and launching attacks through the invisible ocean of air, with contingents from these Task Forces embattled out of sight of their mobile home bases, akin to the aerial engagements between opposing fleets in World War II.

IF A TRULY three-dimensional, air fighting army is to eventuate, there must be further efforts to think in terms of all-encompassing mobility, by whatever means.

We cannot, of course, be sure that the air fighting army will be the answer for 1980. But if it is accepted as a possibility, then that fact influences our present consideration of the future prospects of Army Aviation. Although there are many problems involved and there is a long period of time in which current operations must go on, we should not lose sight of the ultimate goal.

Expanding growth of Army Aviation is a foregone conclusion. Whatever the direction of development of ground tactics, Army Aviation will play a vital part.

Anticipating the swift-moving requirements of future warfare, Quartermaster Corps meets the challenge—

"Deliver It By Air"

Captain Donald L. Gellnicht

IF IT were possible for Leonardo da Vinci, the Italian genius of the 15th Century, to visit an Armed Forces exhibit in this day and age, he would undoubtedly be amazed. He could not begin to comprehend the weapons, the signal equipment, the vehicles, or even the food and clothing that is furnished the 20th Century soldier. He would see nothing that was even remotely familiar until he visited, of all places, the display of parachutes. Here, da Vinci would return to the 15th Century, for the parachute of today is basically the same as that which he described in the *Codex Atlanticus* written in 1495.

The parachute, as originally conceived by da Vinci, was composed of four triangular sections of cloth joined together in the form of a pyramid. The parachutist, if we may call him that, was supported by various ropes which extended from a harness on his back to the triangular canopy.

Fundamental principle of da Vinci's parachute was to offset the pull of gravity by increasing the amount of air resistance. This in turn reduced the speed at which the individual fell through the air. The same principle is used today.

CAPTAIN DONALD L. GELLNICHT, Quartermaster Corps, is Assistant to the Special Adviser for Airborne Matters, Quartermaster Corps, Department of the Army.

When the first successful balloon was developed in the 18th Century, men began jumping with parachutes. However, until World War I, the parachute was, for the most part, a carnival item. In 1917, the Germans proved that the parachute could be successfully employed as a life saving device from disabled aircraft. By the end of the war, all countries had equipped their pilots with some form of emergency parachute. In the decade following the war, over 200 pilots saved themselves by this means. One, by the name of Charles Lindbergh, saved himself four times—twice while performing exhibition flights over Germany.

In 1928, General Billy Mitchell attempted to prove that the parachute was a potential weapon, as well as a carnival item and emergency life saver. To prove his point, he staged a "mass" parachute jump of a machine gun squad at an airfield in Texas. While the jump was a success, the lesson did not take, and the parachute was forgotten until 1940 when the first platoon of Airborne Infantry was activated at Fort Benning, Georgia. The rest is a familiar story. The platoon expanded into a company, then into a battalion, and culminated at the termination of hostilities with five airborne divisions and many regimental-size combat teams.

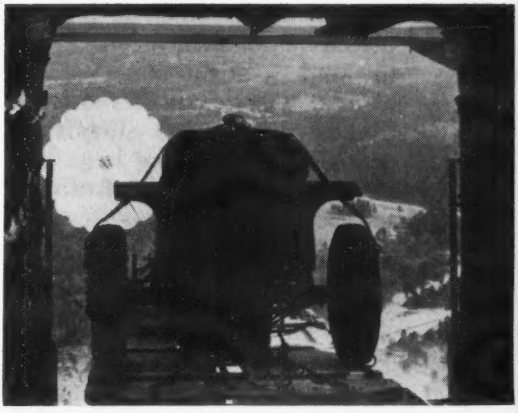
THE question might well be asked—Why has the parachute of today changed so little basically from that of the 15th Century era, while the airplane, which was not successfully flown until 1903, is now in the supersonic class only 50-odd years later? A partial answer is this:

The new airborne concept came into being during the stress of mobilization when there was little time for research and development of parachutes and related equipment. The parachute utilized by the airborne troops was, through necessity, essentially the same parachute that had been used by the Army Air Corps for emergency bail-outs during the 1920's. A major modification was the addition of a static line, which served automatically to deploy the parachute after the jumper had made his exit from the aircraft.

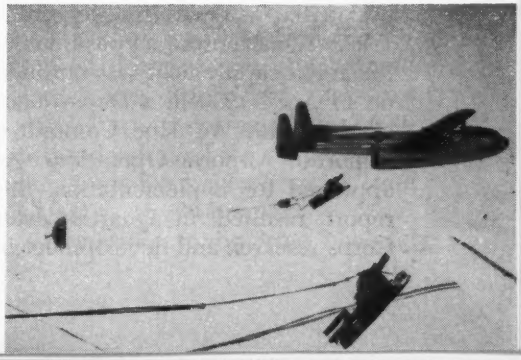
The planes available to this new soldier were in the same category as the parachutes. All had been originally designed as transports for commercial use prior to the war and were being utilized as military transports solely because nothing else was available.

A jeep would fit in a C-47, but only after much persuasion. After it was in, it had to be air-landed for delivery to ground units. The parachutists were limited in the equipment that they could carry, and the only method of aerial delivery was by small bundles which were either attached to bomb shackles or pushed from the door of the plane when the drop zone was reached. Weapons, such as artillery pieces, had to be disassembled and packed into several bundles prior to delivery, or

Two 100-foot parachutes will deliver 6,000 pounds of palletized ammunition being loaded aboard a C-119 in Germany.



Downward-bound — an extraction chute pulls a heavy load from a C-119. Below, two 105-mm. howitzers start their descent during a training exercise.



landed by glider after a landing zone had been secured. Ground transportation for the World War II trooper was non-existent. He either walked or rode in what he could capture.

The situation remained unchanged until the C-82 troop carrier aircraft came into being in 1947. Though not originally designed for the aerial delivery of heavy cargo and equipment, some imaginative individual had the idea of flying the aircraft with the clamshell doors removed. Vehicles and weapons were lashed to a pallet-type platform, which in turn was placed on roller conveyors fastened to the deck of the plane. A small extraction parachute served to pull the cargo from the aircraft and activated one or more large parachutes that lowered the platform to the ground. After many tests, the system proved successful, and a new chapter in airborne history was opened.

ALMOST simultaneously with this revolutionary development in delivery from transport aircraft, the responsibility for supporting the Army with air type equipment was transferred from the Air Force to the Quartermaster Corps. In addition, Quartermaster Aerial Supply Companies were activated and Divisional Parachute Packing and Maintenance Companies were redesignated as Quartermaster units.

The Quartermaster position in the aerial supply field was outlined on 14 April 1950 in a Department of the Army Ad Hoc Committee Report on Airborne Operations. As approved for implementation, this report resulted in Quartermaster Corps research and development in the fields of free-fall delivery and of administrative airborne equipment such as bin boxes, packing tables, drying equipment, and the like. The Air Force retained responsibility for development of parachutes and other related items which employed the principle of retarded fall.

In July 1955, The Quartermaster General was assigned broader responsibility for research and development of all Army equipment required for delivering Army personnel, supplies, and equipment from aircraft in flight. In addition, he was charged with the responsibility for research to advance, where required, the state of the aerial delivery art.

Lt. Gen. James M. Gavin summed up the challenge to the Quartermaster Corps when he stated, "Air mobility is the key to battle capability today, the ability to deliver men to the battle zone and support them there." It is an accepted fact that any future conflict will require aerial supply as a normal, rather than an emergency, means of supply. In analyzing the methods currently employed in effecting aerial delivery, it becomes apparent that the system, to be effective, must be completely revolutionized. The capability of delivering men, equipment, and supplies already exists. However, with the aerial delivery equipment presently in use, it is extremely difficult to perform the mission on the vast scale required.

CONSIDER, for example, some of the aerial delivery problems that confront the Army today. To deliver 48 cases of C rations, utilizing the present system of aerial supply,

a 64-foot cargo parachute and an adjustable sling assembly is employed—at a total cost of $726. To pack the parachute requires two highly trained specialists a minimum of 45 minutes. In addition, a suitable area for drying and packing the parachute, warehouses for storage of the aerial delivery equipment, and numerous other critical and expensive items are required for the delivery of these 48 cases of rations!

The problems do not cease when the parachute is packed. The parachute and container weigh 341 pounds. The aircraft delivering the cargo must fly at a speed of 130 knots to conform with safety requirements and the capabilities of the aerial delivery equipment. In addition, the accuracy of the drop decreases in direct ratio to the increase in altitude.

Problems continue even after the equipment has reached the drop zone. A valuable piece of equipment, such as the parachute, must be recovered for future use. The recovery requires personnel and transportation which combat commanders can ill afford to divert for such use. When and if the parachute is returned, it must be dried, inspected and, in some instances, repaired before the cumbersome cycle begins anew.

To appreciate the increase in support potential available to the Quartermaster Corps, compare today's aircraft with those used in World War II. Then, a formation of 80 C-47's could deliver 120 tons of supplies per lift. Today, a like formation of C-130 aircraft, which is replacing the C-119 as the standard troop transport, will be able to land or drop 1000 tons of cargo and equipment in a single lift. This has created many problems with respect to loading, securing, releasing, and extracting the heavy loads from the aircraft.

THE aerial delivery system which is standard today is capable of air-dropping equipment weighing up to 18,000 pounds. The system consists of three parts—the aerial unloading kit, the parachute system, and the aerial delivery kit. The former consists of those components required to provide the aircraft with an airdrop capability, such as tie-down chains, wheeled conveyors, and buffer assemblies. The parachute system is composed of a pilot and extraction parachute which pulls the load from the aircraft, and one or more main cargo parachutes which suspend the load during descent. The aerial delivery kit consists of a platform constructed principally of wood. This platform has numerous shock pads and plywood crash frames which are placed between the load and the platform to absorb and distribute the forces on ground impact.

The limitations of this system become apparent when one analyzes the number of kits that are utilized. Today, 20 different kits are used for dropping supplies and equipment. For example, there are five kits of the eleven-foot size used in dropping loads in the 3,500-pound class; two kits with twelve-foot platforms in the 6,000-pound range; five fifteen-foot platforms which may accommodate 7,000-pound loads; and five for items like the 2½-ton truck which weigh from 12,000 to 18,000 pounds.

In addition to requiring a special

An L-19 aircraft is rigged with two wing bundles prior to a "free-fall" drop.

kit for each vehicle, other major difficulties exist. Maximum ground winds during delivery cannot exceed 15 miles per hour. The pre-drop procedure is also hazardous, since no emergency jettisoning is possible, and the load is neither restrained nor guided during extraction from the aircraft.

TO overcome these shortcomings, a new "family" of platforms is under development. These platforms will be capable of supporting supplies and equipment ranging in weight from 2,000 to 20,000 pounds. They are to contain integral shock absorbers and have an anti-tóppling capability in a 35-mile-per-hour ground wind. In addition, there will be ease of rigging, automatic restraint and release, positive guidance during extraction, and increased service life of the platform. The kit will be capable of delivering any vehicle that does not exceed the prescribed weight limitation.

The Quartermaster Corps is currently conducting an extensive aerial delivery research program to develop low cost methods and equipment for the delivery of supplies, so that they are accessible to our fighting men. Primary emphasis is placed on the development of aerial delivery equipment which is either expendable or can be utilized by combat units for other purposes, such as shelter, fuel, dunnage, and the like. Development of such equipment will result in a two-fold gain—the need for evacuation will be eliminated, as will the requirement for post-operational maintenance in the depot areas.

In 1952, the Quartermaster Food and Container Institute, at Chicago, Illinois, began the study and development of methods relating to the packing and dropping of supplies. Virtually all conventional drops made by parachute have a terminal velocity varying from 20 to 30 feet per second. One approach to decreasing costs consists in increasing the velocity at which supplies and equipment can be adequately protected upon impact with the ground. In addition to reducing the parachute costs, this method would serve to increase the accuracy and permit delivery at higher speeds and altitudes.

SEVERAL cushioning materials were tested with varying degrees

of success—metal cans, foamed plastics, and paper in the form of honeycomb. Because of its low cost and weight, paper honeycomb was selected as the most promising material. Based on cost information presently available, it appears that optimum impact velocities will fall in the range of from 30 to 100 feet per second. Small parachutes will be used to reduce terminal velocities to values near the optimum impact velocity. Cushioning material then provides the balance of energy absorption.

Considerable savings can be effected by utilizing this new method of delivery. Costs will be reduced approximately five to one by utilizing a 24-foot ribbon parachute to stabilize the load, and 12 inches of paper honeycomb energy absorbing material to absorb the shock. In addition, the new method makes it possible to obtain greater accuracy due to the reduction of wind drift.

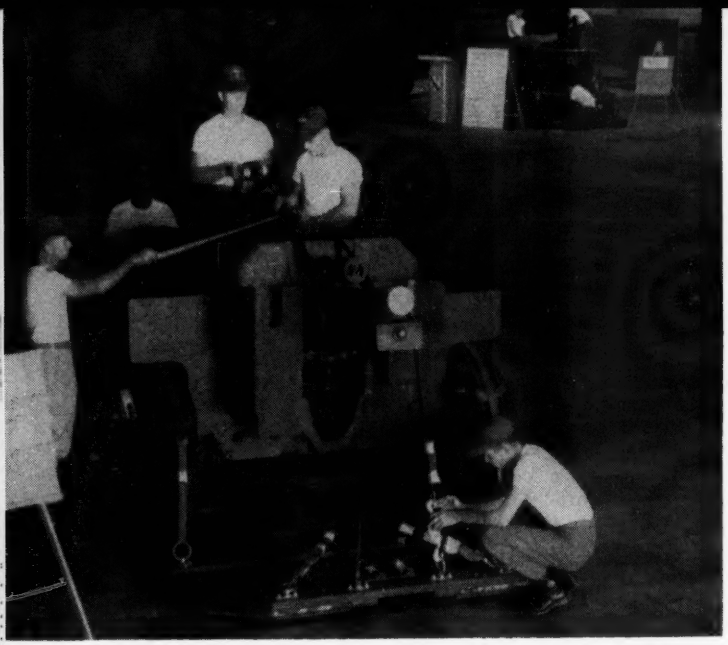
Assuming that future warfare will probably be conducted by small, highly mobile, widely dispersed units, there will no doubt be a requirement for aerial delivery at low altitude utilizing high speed aircraft. This is another challenge which the Quartermaster Corps is meeting by working on aerial delivery systems to provide for such a contingency.

Conversely, an airlift of long range may require delivery from high altitude utilizing high speed cargo-type aircraft. Both of these problems are under study by the Army, the Air Force, and the Marine Corps.

WIDESPREAD interest in the field of research and development was forcefully demonstrated at the recent Department of Defense Aerial Delivery Symposium conducted at Fort Lee, Virginia, during April 1956. This conference, which was coordinated by the Quartermaster Corps, drew conferees from all the services, government agencies, and industry.

This 40-mm. antiaircraft gun, rigged for dropping, was among the items on display at the Symposium.

UNITED STATES ARMY
40 MM ANTIAIRCRAFT GUN
AERIAL DELIVERY KIT
Weight Of Gun 5850 Lbs
Platform Weight 740 Lbs
Accessories Weight 350 Lbs
Parachute Weight 500 Lbs
Total Weight 7440 Lbs
Number Dropped from C-119 2
Dia. Of Grid 100 Ft
Rigging Time 50 Min
Ejection Time 3 Sec
Preparation for Ground Use 10 Min
STANDARD



Trainees at the Quartermaster School, Fort Lee, Virginia, learn how to prepare heavy equipment, such as this gun platform, for airdrop.

Primary purpose of the symposium was to provide the leaders in the aerial delivery field with an opportunity to pool their talents in seminar discussions. Seminars were organized into the following fields of primary interest—aircraft characteristics, planning considerations, packaging requirements for aerial delivery, airdrop systems and component research, and operations in support of aerial drop of supplies.

How will the threat of mass destruction weapons affect aerial supply operations from the standpoint of preparation and loading of supplies and equipment? Do future troop carrier aircraft characteristics hold promise of simplification in techniques of loading, securing, and releasing individual and/or multiple loads for aerial delivery? These were typical questions which were discussed in the seminars. In many cases, complete agreement was reached. In others, it was clearly indicated that more research was required.

In fulfillment of its responsibilities to advance the aerial delivery art, the Quartermaster Corps has aggressively solicited the aid of the other services, of industry, and of educational institutions. The University of Texas is actively engaged in research pertaining to energy-absorbing systems, Pennsylvania State University is engaged in a study of impact phenomena, and at the University of Minnesota all aspects of parachute development are under consideration.

With the support that is being received from all the services, civilian industry, and leading scientists, the Quartermaster Corps will successfully meet its challenge and advance the state of the aerial delivery art to its rightful place in the Army of today.

Service tests by CONARC Board No. 6 insure

RELIABLE AIRCRAFT FOR THE ARMY

Colonel Robert R. Williams

RESPONSIBLE for service testing Army aircraft and associated equipment, Continental Army Command Board No. 6—better known as the Army Aviation Board—is located at Fort Rucker, Alabama, home of the Army Aviation Center.

Although the Board was activated as recently as August 1955, the Army actually has been performing service tests of its own organic aviation equipment for some time. With the planned reorganization of the services after World War II, it became apparent that the Army would have to conduct its own user tests, since the mission of light aircraft differed considerably from that performed by aircraft of the other services.

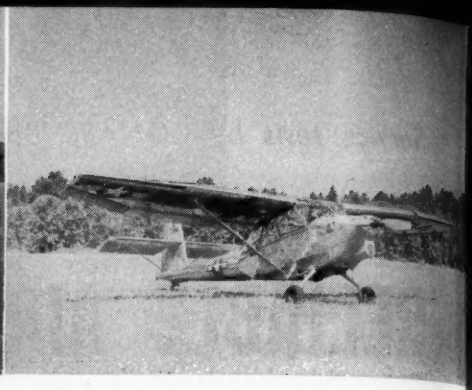
A Ground Aircraft Test Section of Army Field Forces Board No. 1 was established in 1946 at Fort Bragg, North Carolina, where it remained until that Board was reorganized and transferred to Fort Sill, Oklahoma, in 1954. Later that year the test section was again moved to the newly established Army Aviation Center at Fort Rucker, Alabama. Early in 1955, using the test division as a nucleus, the Army Aviation Board was activated, and its mission and capability greatly expanded.

One of its first assigned projects was the service test of an improved model of the L–5 airplane, the type which had seen considerable service during World War II. In 1947 the first helicopter, a YR–13, was delivered to the Board. This helicopter was the forerunner of the H–13 series which is now standard in the Army and which was so successful in combat operations in Korea. Other helicopters tested included the YH–24, the H–25, and the YH–30.

In addition to helicopters, many airplanes were subjected to Board tests. The L–13 and the L–15 were tested and discarded as unsuitable for Army use. The first command aircraft, L–17, was tested and found to be satisfactory. Due to the success of this airplane, the Army investigated and accepted the Beechcraft Twin Bonanza, later designated the L–23. Associated items

COLONEL ROBERT R. WILLIAMS, Artillery, is President of CONARC Board No. 6, Fort Rucker, Alabama.

This L-5 was first aircraft delivered to the Section in 1946.



A year later came tests of the L-13, to be followed . . .

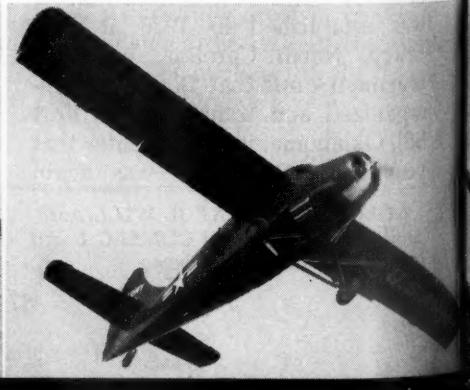
In 1948 the L-17, Army's first command type airplane, was tested.

A DECADE OF AVIATION ADVANCEMENT

In the ten years since it began its work in 1946, the Ground Aircraft Test Section has assisted materially in development of Army aircraft. Many of the machines service tested by the Section were battle proved in Korea. Today tests are being conducted on various types of aircraft that will be contributing to the greatly increased mobility of tomorrow's Army.

The YH-30 helicopter was put through its paces in 1953.

Currently the UIA fixed wing plane is undergoing service tests . . .



. . . in the same year by the YR-13, first standard H-13.

By 1951 the YH-24 helicopter came to the Section.

. . . as is the YH-31 helicopter at CONARC Board No. 6.

of equipment such as radios, fuel trucks, auxiliary starting motors and many others were also tested.

THE mission and function of the Board is similar to that of the other five CONARC boards (See May—October 1956 DIGESTS). Because of the type of equipment being tested, there is, however, one important difference. Most equipment tested by other CONARC boards has little practical application outside the Army. Few non-military agencies, for example, are interested in heavy guns or tanks. But this is not true in the case of equipment for Army Aviation.

Interest in aviation equipment, techniques, and developments is almost universal, and receives considerable impetus outside the military. Accordingly the Army Aviation Board must keep abreast of these developments as well as those stemming from the other services which may have direct application to Army Aviation. As a result, the Board's mission includes responsibility for reviewing and testing procedures and items of equipment developed by many sources.

The Board, comprising some 200 personnel, both military and civilian, is organized into five divisions —Administrative, Test, Logistics, Development Guidance, and the Board Detachment.

The majority of all testing is conducted by the Test Division which is divided into two branches, Aircraft and Equipment. The Development Guidance Division keeps abreast of developments by civilian and other service agencies. The other divisions serve in a support role, making the Board a self-sufficient, independent organization.

The Board reports directly to Headquarters, CONARC, and receives its logistical support from the Army Aviation Center.

Every combat arm is represented on the Board, as well as those technical services that are authorized Army Aviation. The majority of officers presently assigned have had combat experience both in ground roles and in an aviation capacity. Among the enlisted men are highly qualified mechanics, radar and GCA technicians as well as other specialists required for testing equipment found in Army Aviation units. Technical assistance and continuity is supplied by qualified civilian engineers and pilots.

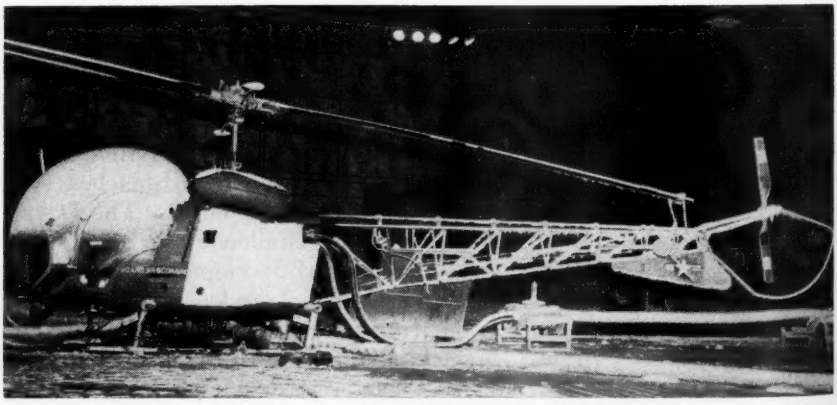
IN ITS internal functioning and method of operation, the Army Aviation Board differs somewhat from other CONARC boards. All projects assigned for service test are conducted through a preliminary phase and four parts of test, as follows:

PRELIMINARY PHASE: This phase —the responsibility of Development Guidance Division—is conducted as far in advance of actual testing as feasible. It includes the gathering of technical publications, engineering test reports and all other available pertinent information. This information is studied, evaluated and utilized as a basis for preparation of a proposed plan of test. The test plan includes recommendations as to the scope of the test and the special equipment or technical assistance that will be required. This data goes to the Test Division for actual testing.

PART I: Purpose of the initial tests is to determine the flight characteristics, performance, and deficiencies of the test item to facilitate design or installation changes early in the production line. It includes a compilation of information on organizational supply and maintenance requirements. The test, requiring fifty hours of flying time, is normally completed in ten working days.

PART II: In this continuation of Part I, pilot transition requirements and procedures are determined and

Army aircraft are tested under conditions of extreme cold in the huge climatic hangar at Eglin Air Force Base.



Not only aircraft but flying aids too are tested, as this Gilfillan Quadradar used in Ground Controlled Approach procedures.

maintenance personnel requirements and procedures are established. This part continues for 100 to 150 hours of flying time.

PART III: Objective of this part is to determine tactical suitability of the equipment as well as organizational supply and maintenance requirements. It requires additional 100 hours of flying time.

PART IV: During this final phase of testing, the validity of previous test results is established by additional flying time. Consideration is given to TOE of using units and supporting units and changes which the equipment may dictate. This phase continues as long as the equipment remains at the Board.

Reports are submitted at the end of each part of test and whenever additional reports are warranted. Most projects do not require additional testing after Part III.

THE Board is presently testing a wide variety of equipment, including aircraft of all sizes varying from the tiny YH–32 (Hiller ram jet) helicopter to the U–1A (De-Havilland) "Otter" airplane. To assure the success of the many Army Aviation missions, a number of items of navigational and radio equipment also are being tested, along with GCA landing assist radars.

Board members thoroughly understand and appreciate the importance of superior equipment. They realize that the difference between superior equipment and "good" equipment may be the difference between combat success or failure.

The products of the technicians are only tools! New tools change the complexion of battle, but not its character. No army long enjoys a monopoly of any weapon; the secret of today is just another tool of the trade tomorrow. It's by *combinations* of weapons and men that wars have always been won; and *small variations from conventional combinations*—adopted in advance—have determined the victor in the crucial battles of all time!

General Willard G. Wyman
Commanding General, Continental Army Command, at The Infantry School, 29 May 1956.

Army Aviation Briefs

HELICOPTER speed records that had stood for up to ten years have fallen before the assaults of an H–34, assigned to Army Board No. 6, Continental Army Command. Flying over closed circuits of 100, 500 and 1,000 kilometers, the Army helicopter set marks respectively of 141.9, 136 and 132.6 miles per hour. The speed runs were conducted by the Army under supervision of the National Aeronautics Association.

Previous records were 122.7 miles per hour for the 100 kilometers, set in 1949 by a Sikorsky S–52, and 66.6 miles per hour for the other two courses, one set by a French SE 3–120 in 1952 and the other in a Sikorsky R–5 in 1946.

STUDY OF advanced designs for large "flying crane" helicopters that would provide increased cargo carrying capacity is being undertaken by five manufacturers under contracts awarded by the Department of the Army. The contractors will analyze new heavy-lift designs looking toward a machine capable of carrying up to 16 tons of cargo—compared to present helicopter capacity which is from three to five tons.

Such heavy duty helicopters would provide increased mobility and transport of large bulk items for short distances over terrain barriers; they would be useful in recovering downed aircraft, assisting in laying bridge sections, clearing wreckage from congested roads, moving critical cargo from ship-to-shore, or many other functions vital to the success of a modern army.

INSTALLATION of two gas turbine engines to replace the present single piston-powered plant of Army helicopters will be thoroughly tested under a contract recently awarded to Vertol Aircraft Corporation, Morton, Pennsylvania.

The twin turbine power plants will be installed in two standard H–21C Workhorse helicopters. The helicopter, now in large scale production, is a 17-place tandem rotored transport powered by a conventional reciprocating engine.

It is expected that the two turbine engines will give the helicopter advantages of multi-engine reliability, higher performance and an increase in all-weather flying capabilities.

RECENTLY redesignated as an Army installation, the former Wolters Air Force Base, Texas, has been renamed Camp Wolters. The changeover is a result of a Department of Defense directive transferring responsibility for Army Aviation training from Department of the Air Force to the Army. Camp Wolters will be used principally for primary cargo helicopter pilot training with an average of 275 students in residence after 1 January 1957.

A HELICOPTER Flight Simulator—expected to reduce cost of training cargo helicopter pilots and aid in advancement of instrument flying—will be developed under terms of a contract awarded to Melpar, Inc., Falls Church, Virginia. Scheduled for completion in 1958, the new Flight Simulator will incorporate the cockpit of the Army's H–37A, Sikorsky Helicopter in its design.

SIX bottles of air captured by Signal Corps scientists from the borderline of outer space—only existing samples of pure air from very high altitudes—are expected to help solve basic mysteries in rocketry and geophysics.

The samples were collected 75 miles up by steel bottles inside the nose cones of two 20-foot Navy *Aerobee* rockets launched recently from the Army's White Sands Proving Ground, New Mexico. As the rockets reached peak altitude, the bottles popped open one at a time, then snapped shut to trap eight quarts each of the very thin air. The nose cones then parachuted to the New Mexico desert.

Work on capturing the rarefied air of upper space was carried on by scientists from the Signal Corps Engineering Laboratories at Fort Monmouth, N. J.

The captured air is so thin that it would not support life. Compressed to the density of normal breathing air, the 48 quarts would take up less than one cubic inch. A human being or animal living at earth level would literally burst from internal body pressures if sealed up in a room filled with such thin air. Complete analysis of the samples will take several months, but Signal Corps scientists expect to prove whether common gases begin separating into layers at high altitudes.

What's New in

Training AIDs

Keep your organization current with the latest training materials by referring to this section in each issue.

TRAINING LITERATURE

While the following new literature will be published shortly, units are cautioned *NOT* to requisition copies until receipt of automatic initial distribution or the items are listed in DA Pamphlet 310-3.

Military Training. This revision of FM 21-5, September 1950, brings the manual up to date and includes discussion of CPX's, field exercises, and maneuvers.

Interior Guard. This revision of FM 26-5, 1952 edition deals with main guard responsibilities to include duties of personnel, composition and duties of special guards, orders, countersigns, and methods of mounting the guard.

Atomic Weapons Employment. This classified manual (FM 101-31) provides commanders and staff officers with technical guidance essential for the tactical use of atomic weapons in support of Army operations.

Field Artillery Battalion, 762-mm. Rocket. This new 6-series field manual furnishes guidance for commanders of batteries, battalions, corps and Army artillery for the employment of the 762-mm. rocket battalion.

Signal Corps Technical Intelligence. This new manual (FM 11-30)—superseding FM 11-35, September 1942—describes the mission, organization, and operation of signal intelligence units, and the means and methods of obtaining and processing information to produce signal intelligence.

Field Decoy Installations. FM 5-23 provides guidance for troops at battalion or lower level in siting, constructing or erecting decoys.

Electronic Search Central AN/GSS-1 and Radar Set AN/TPS-1D. This new 44-series field manual is a guide for battalion commanders and staff, battery commanders, and AN/GSS-1 and AN/TPS-1D chief radar operators.

Services of the Operations Center AN/MTQ-1. This manual (FM 44-( ) includes a description of the equipment and facilities provided by the AN/MTQ-1 for accomplishing the mission of an AAOC; suggested maintenance practices; and duties of personnel.

Revisions now being readied for distribution include the following:

ROTCM 145-95, "Army Administration"
FM 55-51, "Terminal Commands, Organization and Operation"
TM 8-285, "Treatment of Chemical Warfare Casualties"
TM 9-2200, "Small Arms Materiel and Associated Equipment"
TM 11-415, "Primary Batteries"
TM 21-305, "Drivers Manual"

TRAINING AIDS

Training Films recently released for distribution:

Mess Sanitation. This 25-minute film (TF 8-2295) demonstrates mess sanitation principles and procedures in the control and prevention of diseases.

NIKE. The following films dealing with the NIKE I missile have been released:

TF 44-2246 NIKE I Missile Tests, Part I—Calibration of the RF Test Set.
TF 44-2249 NIKE I Missile Tests, Part IV—A—Measurement of Burst; Fail Safe Time, and Buzz Voltages.

The New Face of the Soviets. This two-reel film (OC-9) takes the form of an officers conference in which questions are put to a professor of international relations. His answers reveal one man's thoughtful opinion as to what changes, if any, have occurred in Soviet policy.

Communist Objectives in the Far East. In this film (OC-7), the Assistant Secretary of State for Far Eastern Affairs discusses Communist objectives in Asia

and the problems involved in curbing the expansion of Communist power there.

Graphic Training Aids approved for distribution:

GTA 5-15, Dummy Training Compass (Revision)
GTA 9-( ), Cartridge, Canister M 336, F 99mm Gun (New)
GTA 9-( ), Counterrecoil Mechanism, 280-mm Gun, T131 (New)
GTA 9-( ), Vacuum and Pressure Gauge.
GTA 9-( ), Complete Round, 8-Inch Howitzer M2 and T89.

ARMY EXTENSION COURSES

The following subcourses, recently approved for publication by Headquarters Continental Army Command, are either new subcourses or major revisions:

Organization and Administration of the Unit Chaplain's Office, Subcourse 4 (30-5). The Chaplain School. Major considerations involved in locating, establishing and operating a unit chaplain's office as an efficiently functioning section of the unit; methods of maintaining proper relations with other personnel, unit offices and higher headquarters.

The Army Chaplaincy Program, Subcourse 24. The Chaplain School. Professional activities of the chaplain in the light of the Army Program System, with special reference to problem areas in execution and accounting.

Terrain Evaluation, Subcourse 33. The Armor School. Factors involved in a terrain evaluation preparatory to an armored operation, to include weather, ground forms, sources of terrain information and military aspects of terrain.

Drainage, Subcourse 104. Engineer School. Characteristics of theater of operations drainage construction, including trenching, excavation, shoring, line and grade, bedding, inlets and outlets.

Map and Aerial Photograph Reading I, Common Subcourse 4. Engineer School. Covers maps, including conventional signs, military symbols, marginal information, scale, distance, location, direction, elevation, and use of compass; also types of photographs, marginal information, point designation, grid, distance, scale, and orientation of photograph with map.

Military Railroads, Subcourse 108. The Engineer School. Introduction to military railroads to include classification, responsibilities of Corps of Engineers and Transportation Corps; track material specifications and possible effect of atomic warfare on rail facilities; Engineer planning prior to track construction; fundamentals of layout and location of a standard turnout; connection of parallel and converging tracks; principles of site selection and design of a railroad yard.

Processing Supplies for Oversea Shipment, Common Subcourse 57. Quartermaster School. Responsibilities for oversea supply; organization and functions of oversea supply agencies of transportation terminal commands; phases and basis for supply; oversea requisitioning agencies; preparation, routing and processing of oversea requisitions; depot and Army transportation terminal handling of oversea shipments; development of Department of the Army and oversea command projects; and procedures for equipping units preparing for oversea movement.

Your Date with History

A CALENDAR OF ARMY ANNIVERSARIES

1 Nov 1946: Field Artillery School became The Artillery School, and Antiaircraft Artillery School became Antiaircraft and Guided Missile Branch of The Artillery School.
3 Nov 1783: Continental Army disbanded, except for one regiment of infantry and two battalions of artillery.
8 Nov 1942: United States and British troops landed in North Africa.
11 Nov 1918: Armistice ending World War I signed.
25 Nov 1950: Chinese Communists cross Yalu River in counteroffensive.
27 Nov 1901: General Staff and Army War College established.

PARAGRAPHS

from

The Pentagon and the Field

At the end of the first year of activity under the Reserve Forces Act of 1955, Army Reserve enlistments totalled 57,861. Of these, 30,972 enlisted in the eight-year, six-month active duty program; 17,158 chose six-year enlistments with two years active duty; and 9,731 one-year enlistment prior service with a year participation. Graduates of the six-month program will total more than 13,000 by the end of the calendar year.

As a result of successful testing by the Army Quartermaster Corps of Self-Service Supply Centers at Fort Lee, Virginia, and Fort Lewis, Washington, the Army has decided to install 47 similar centers during the current fiscal year. Thereafter, it is planned to open centers at all other Army installations where the volume of retail supply transactions justifies the action.

Modeled after the modern supermarket, these centers provide expendable military supplies for authorized Army units with a saving of time, effort, and paper work. Expendable supplies are low-cost, high-volume items, other than food (such as cleaning supplies).

Army staff responsibility for functions pertaining to Troop Education, to include Army Education Centers and Transitional Training Units, has been transferred from Chief of Information and Education to the Deputy Chief of Staff for Personnel. As part of the reorganization, the Office, Chief of Information and Education is renamed the Office, Chief of Information, reporting directly to the Chief of Staff on matters pertaining to Public Information and Troop Information. The new organization gives additional command emphasis to the importance of Public Information and Troop Information by placing these two important activities directly under the Commander. Changes will be reflected in ARs and SRs now being rewritten.

Task Force 87, an Army Engineer unit with headquarters at Fort Belvoir, Virginia, recently completed installations at Fort Churchill, Manitoba, Canada, from which scientists will launch rockets and guided missiles as part of the experiments scheduled for the International Geophysical Year activities. The Army Engineers were at Fort Churchill at the invitation of the Canadian Government.

All-Army championships during the calendar year 1957 will be conducted in basketball, wrestling, boxing, bowling, volleyball, track and field, triathlon, swimming and diving, golf, tennis, softball and baseball. The program will be under direction of The Adjutant General, as detailed in Circular 28–26.

Dates and host commands for the various sports are: boxing, 3-8 March, Third Army; wrestling, 10-15 March, Fourth Army; basketball, 18-23 March, First Army; bowling (both men and women) 2-4 April, Second Army; volleyball, 1-5 May, Third Army; track and field, 13-15 June, Fourth Army; triathlon, 13-15 June, Fourth Army; swimming and diving, 22-24 July, Fifth Army; golf, (men's open, men's senior and women) 12-17 August, Sixth Army; tennis, (men's open, men's senior and women) 12-17 August, Sixth Army; softball, 5-9 September, Fifth Army; baseball, 16-20 September, Second Army.

Suggestions submitted by Army civilian and military personnel during Fiscal Year 1956 will effect an estimated savings of more than $18,000,000. A total of 71,741 recommendations were received under the Department of the Army Suggestion Program. Army civilian employees received a total of $398,828 for their ideas.

Paint that will withstand high temperatures has been developed at the Corps of Engineers Research and Development Laboratories, Fort Belvoir, Virginia. Designed primarily for field application for protecting exhaust systems of diesel engines, it has proved even more satisfactory in plant use. Applicable by brush or spray, it dries within an hour, provides protection against rust and corrosion. After complete curing the protection afforded is unlimited.

Capable of being expanded to almost twice its seven-foot travelling width, a truck-mounted van has been developed by the Corps of Engineers Research and Development Laboratories, Fort Belvoir, Virginia, to provide mobile units for photomapping operations. Mounted on a standard 2½-ton truck chassis, the van can be expanded to 13½ feet by two men in less than five minutes, to provide a working area of 230 square feet.

A company of an Army Topographic Battalion will be furnished with a train of 11 of the expansible vans. These will provide facilities for computing, plotting, drafting, editing, revising, rectifying and printing aerial photographs, mosaic and multiplex compilation, and supply operations. The van also is capable of being used for many other mobile activities, such as dental and X-ray clinics, operating room, radio, radar and fire control centers.

Radar at Work

UNHAMPERED by fog, darkness or foliage, a new "radar ruler" developed by the Signal Corps Engineering Laboratories now allows surveyors to measure off 50 miles at a leap—and more easily than measuring a mile under old methods.

Designed under Signal Corps contract by Motorola, Inc., Chicago, the new system uses two separate jeep-portable radio stations, one at each end of the distance to be measured. The entire radar station, a 250-foot collapsible antenna mast and three metal cases filled with electronic equipment, weighs only 200 pounds.

Antennas placed at the two distant points send a radar signal back and forth thousands of times each second, and automatic computers register the distance in terms of time the signal takes to make 10,000 round trips. This can be quickly converted on a simple chart to give a high precision point-to-point measurement. The system is accurate to within a few feet at 50-mile distances.

Besides its obvious military uses, the electronic surveyor is expected to have many advantages for other governmental agencies and civilian firms that measure over difficult terrain or survey over large bodies of water.

A NEW and rapid means of preparing maps by using radar, developed by scientists at Army Signal Corps Laboratories at Fort Monmouth, New Jersey, will help provide a quick method for restoring communications in a disaster area.

Since television signals and the ultra-high frequencies used for telephone relay and some military radios travel only in a straight line, a survey of hills and other obstructions normally must be made so that antennas may be placed in direct "line of sight" contact.

By photographing the "ground clutter," or reflection of hills, trees and other earthbound objects which normally interfere with radar spotting of low-flying planes, the Signal Corps can prepare "propagation maps" to determine the best sending, receiving or relay points for television, radio and telephone communications under changing conditions.

Applying the new technique, a radar antenna scans the countryside around a proposed transmission point, and a camera photographs the radar screen. Every part of the terrain that reflects on the screen is good reception territory. When superimposed on an existing road or contour map, the photograph indicates the best relay points, thus eliminating need for extensive surveys.

A one-week course designed to indoctrinate officers and some selected civilians in Special Forces concept, doctrine, organization, operations and techniques, has been established at the Psychological Warfare School, Fort Bragg, N. C.

Stateside active duty officers, captain or above, and some Government civilians with actual or anticipated requirement for a knowledge of Special Forces are eligible to attend. Instruction includes guerrilla movements and tactics, infiltration methods, evasion and escape operations, methods and capabilities of demolitions, and cultural factors in successful Special Forces operations. Classes began in October. Others will begin 11 February, 11 March, 20 May and 3 June 1957.

A giant electronic computer to account for and control the daily changing status of 150,000 items throughout the world, has been put into operation at the Army Signal Supply Agency in Philadelphia. Designed by the International Business Machines Corporation, it is a key element of the electronic data processing network handling requisitions, stock control and other data pertaining to Signal supplies for the entire Army. The new computer can make 30,000 logistical decisions per second. It can make 8,400 additions or 1,200 multiplications per second and can process 8,000 tabulating machine cards a minute. Information made available is memorized and stored on reels of magnetic tape which is continuously available for reproduction at electronic speeds.

Two books have recently been issued in the series entitled "The United States Army in World War II" prepared by the Army's Office of the Chief of Military History.

The War Department: Global Logistics and Strategy, 1940–1943, fourth in a series dealing with the World War II history of the War Department, describes the task of assembly, movement, and delivery of great masses of men and materiel through the world.

The China-Burma-India Theater: Stilwell's Command Problems describes the problems of Lieutenant General Joseph W. Stilwell, his staff and troops. The new volumes may be purchased for $6.25 each from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Official Notes

WORK SIMPLIFICATION. AR 1–65 define policies, establish responsibilities, and outline the work simplification program within the Army Establishment.

REVIEW OF REPORTS. AR 335–30 prescribe procedures for periodic review of recurring reports established pursuant to AR 335–15.

WITHHOLDING TAX. AR 35–1810 cover in detail the withholding of income tax from military personnel.

MILITARY PUBLICATIONS. AR 310–1 prescribe general policy and procedures governing official publications. Such publications will provide, within the limit of available funds, all information essential to performance of official duties, except that obtainable from such publications of recognized authorities on subjects of a technical, tactical, or general nature as approved for official use.

ARMY NURSE CORPS. AR 601–135 establish the Army Registered Nurse Student Program, designed as a Regular Army officer procurement program.

LOD DETERMINATIONS. AR 600–140 cover requirements to determine whether wounds, injuries, diseases or deaths were incurred in line of duty or were due to misconduct.

MORALE, WELFARE, RECREATION. AR 210–55 prescribe the appli-

cability of funds for construction, maintenance, utilities, and supply support for morale, welfare, and recreational activities world-wide.

OVERSEA TRAVEL. AR 55–71 (AFR 75–33) prescribe general procedures for packing, crating, marking, tagging, and shipping household goods and personal baggage from, to, and between oversea duty stations, when such shipments are authorized by competent Army or Air Force orders for military and civilian personnel and their dependents.

HOSPITAL PATIENTS. AR 614–60 specify the manner in which active duty military patients will be carried on the administrative records of Army hospitals or other designated Army organizations, and prescribe the method for assigning or attaching patients upon admission for, during and upon completion of hospitalization.

COUNTER INTELLIGENCE CORPS. AR 611–61 establish procedures for applying for Counter Intelligence Corps training and assignment for all ranks in time of peace and during mobilization.

FLYING STATUS. AR 600–106 prescribe uniform procedures for awarding of aeronautical designations and issuance and administration of flying status orders for Army personnel. AR 600–107 cover procedures governing suspensions, flying evaluation boards, and establishment of a flight status selection for Army aviators.

MEDICAL CARE. AR 40–104 prescribe conditions under which authorized personnel are provided medical care (including dental) at medical treatment facilities of Federal agencies other than those within the Department of Defense.

PAY AND ALLOWANCES. AR 35–1020 prescribe the basis for payment of pay and allowances to a member of the Armed Forces during leave, and for the payment of a lump-sum for unused accrued leave at date of discharge.

PUBLIC INFORMATION. AR 360–5 set forth public information concepts and responsibilities of the Department of the Army. They cover authority and responsibilities, review and clearance, operations in the field, and release of information.

NONAPPROPRIATED FUNDS. AR 230–5 set forth basic policies and principles governing the nonappropriated fund system in the Army establishment.

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Combat Helmet Radio— Versatile Communications Aid

A LONG forward step toward improved individual battlefield communications has been taken with the development of a combat helmet radio set by the Signal Corps Engineering Laboratories at Fort Monmouth, New Jersey. The item now is undergoing exhaustive tests.

Capable of operating continuously for half a day on a single set of tiny batteries, the experimental models weigh only a pound. Its electronic apparatus fits into two small metal cases, smaller than two packs of cigarettes, which snap inside the helmet. The headgear itself looks something like a football helmet, and is molded of tough synthetic material that protects the head as effectively as steel.

To prevent enemy interception of messages, the helmet radio is preset for short range conversation between squad members. But range can be increased by an auxiliary antenna on top of the helmet. The radio can also "net in" with standard Army radios, so that messages can be picked up behind the lines and "leap-frogged" over long distances.

BECAUSE the set uses tiny transistors instead of standard tubes, no warm-up time is necessary. The soldier can merely flip a switch and talk through a thumb-sized microphone. If talking might give away his position, the soldier in a battle area can push a second button at the side of the helmet and acknowledge messages with a short radio "beep".

Like its bigger brother, the "walkie-talkie," the new radio is extremely rugged. It is designed to operate even after being dropped five feet onto a concrete floor, tumbled five hours in a testing machine, or battered with an impact equal to flying shell fragments.

Besides its obvious military uses—individual communications between leaders and battle squad members, artillery observation, and so on—the versatile little radio is expected to have many civilian uses.

(For pictures of the new helmet radio in use, see back cover.)

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